

REMARKS

Claims 1, 2-4, 7, 12-15, 17, 20 and 21-22 are pending. The specification has been amended to correct some minor and inadvertent typographical errors. Accordingly, no new matter has been added.

Further, no new issues have been raised by way of the present submission, which would require additional search and/or consideration on the part of the Examiner.

In the event that the present submission does not place the application into condition for allowance, entry thereof is respectfully requested as placing the application into better form for appeal.

In view of the following remarks, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

Objections to the Claims

The Examiner has objected to claim 1 asserting that it must end with a period. Applicants traverse and submit that claim 1 as filed with the October 4, 2004 Amendment did contain a period. The Examiner's attention is directed to page 3, line 10 of the amendment filed October 4, 2004. Accordingly, this objection is moot. Reconsideration and withdrawal thereof are respectfully requested.

Issues Under 35 U.S.C. § 102(b)/103(a)

The Examiner has rejected claims 1-4, 7, 12-15, 17 and 20-22 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Salyer, USP 5,565,132 (hereinafter referred to as Salyer '132). Applicants respectfully traverse this rejection.

The Examiner has maintained his rejection and asserts that in view of the allegedly substantially identical composition disclosed in Salyer '132, the specific properties of the present claims are inherent. Applicants respectfully disagree.

The Examiner is incorrect in asserting that the composite disclosed by Salyer '132 is at all similar to the presently claimed composite. In fact, the composite of Salyer '132 differs substantially from the present composite at least with respect to the amounts of ingredients included. The Examiner is requested to carefully consider the following comments.

The present composite requires the ratio by weight of the matrix resin material and the phase transition material to range from 60:40 to 80:20. This represents a ratio range of matrix resin material to phase transition material of 3:2 to 4:1. Reversing these values, the present claims require the phase transition material in small amount of about 1/4 to about 2/3 times as much as the matrix resin material.

In contrast, Salyer '132 discloses a composite comprising about 16-22% of polyolefin (matrix resin material) and about 60% of phase change material, based upon the total weight of the

composite. See column 2, lines 40-45 of Salyer '132. Calculating a ratio from these materials, one arrives at a ratio range of matrix resin material to phase change material according to Salyer of about 16:60 to 22:60. This represents a ratio range of matrix resin material to phase change material of approximately 1:4 to approximately 1:3. Again reversing these values, it is apparent that Salyer '132 requires the phase transition material in an amount of about 3/1 to 4/1 compared to the matrix resin material.

Accordingly, the amounts of ingredients, in particular the phase change material and matrix resin material of Salyer '132 are substantially opposite compared to the amounts required by the present composite. There is no overlap between these amounts. Based upon this discrepancy alone, the present invention is distinguished from Salyer '132.

For a rejection to constitute "anticipation", all material elements of a claim must be found in the cited art reference. In re Marshall, 577 F.2d 301, 198 U.S.P.Q. 344 (CCPA 1978). Therefore, without the disclosure or suggestion of the specifically claimed ratio range of matrix resin material to phase transition material, there is no anticipation based upon Salyer '132.

Further, the Federal Circuit has explained that "the consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a

reasonable expectation of success. Rockwell Int'l Corp. v. United States, 47 U.S.P.Q.2d 1027, 1033 (Fed. Cir. 1998). Thus, the prior art must first suggest or provide motivation to one of ordinary skill in the art that the subject matter claimed should be pursued. Then, there must be a reasonable expectation of success. In the present instance, as discussed above, Salyer '132 fails to suggest or disclose the specifically claimed ratio range of matrix resin material to phase transition material. Accordingly, the Examiner has failed to present a valid *prima facie* case of obviousness.

Based upon the above facts alone, the Examiner has failed to present a valid case of anticipation or obviousness based upon Salyer '132. Accordingly, this rejection is improper and should be withdrawn. However, in order to quantitatively prove that Salyer '132 fails to achieve the properties recited in the present claims, Applicants have conducted a comparative experiment, which is illustrated in the Declaration pursuant to 37 C.F.R. § 1.132 attached hereto.

As already argued (see last Reply dated October 4, 2004, as well as the Annex information attached thereto), the composite of Salyer '132 differs substantially from the present composite with respect to the Flexural Modulus and room temperature heat conductivity. The present composite requires a Flexural Modulus of 3000 kg/cm² or more, and a room temperature heat conductivity of 0.4 W/m-K or more. It has been explained that Salyer '132 fails to disclose these properties, and Applicants now provide

the previously submitted evidence in the form of a Declaration pursuant to 37 C.F.R. § 1.132.

The Declaration illustrates a composite {K18/HDPE/EVA/ABS (60/16/8/16)} as described in Example 1 of Salyer '132. This corresponds also to composite no. 8 in Example 3 of Salyer '132. The composite according to Example 1 of Salyer '132 was tested for the properties of Flexural Modulus and Thermal Conductivity. As is evident from the results shown in Table 1 of the Declaration, the Thermal Conductivity of the composite of Salyer '132 is 0.19 W/m-K and the Flexural Modulus of the composite of Salyer '132 is less than 1000 Kg/cm². However, the present composite is required to have a thermal conductivity of 0.4 W/m-K or more and a Flexural Modulus of 3000 Kg/cm² or more.

Accordingly, it is evident that Salyer '132 fails to inherently achieve the presently claimed invention. For these additional reasons, the Examiner is respectfully requested to withdraw this rejection.

Issues under 35 U.S.C. § 103(a)

The Examiner has also rejected claims 11, 12, 19 and 20 under 35 U.S.C. § 103(a) as being obvious over Salyer '132 in view of Nguyen et al., US 2003/0068487 (hereinafter referred to as Nguyen '487). Applicants respectfully traverse this rejection.

Nothing in either Salyer '132 or Nguyen '487 suggests or discloses the presently claimed subject matter. As explained

above, the ratio range of matrix resin material to phase transition material required by the present claims is neither suggested nor disclosed by Salyer '132. Further, Salyer '132 fails to achieve a composite meeting the specific flexural modulus and heat conductivity requirements of the present claims. The secondary reference of Nguyen '487 fails to cure any of these deficiencies. Accordingly, when the Salyer '132 and Nguyen '487 references are taken in combination, there is no motivation to arrive at the presently claimed subject matter. Accordingly, this rejection is moot. Reconsideration and withdrawal thereof are respectfully requested.

In view of the above, Applicants respectfully submit that the present claims define subject matter which is patentable over the cited art. Accordingly, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.


If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Craig A. McRobbie, Registration No. 42,874, at (703) 205-8000, in the Washington, D.C. area.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants respectfully petition for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of \$120.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachments: Declaration pursuant to 37 C.F.R. § 1.132; and
Curriculum vitae of Dr. Heon Sang Lee